The Royal College of Surgeons of England

Ann R Coll Surg Engl 2001; **83**: 325–328

Original article

Survey of methods of treatment of haemorrhoids and complications of injection sclerotherapy

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***Introduction*: This study was conducted to survey current practices in the treatment of haemorrhoids (Hs), prevalence of complications associated with injection sclerotherapy (IS) and attitudes to its use to treat anterior Hs.**
***Methods*: Postal questionnaires were sent to 92 consultant surgeons in the South East Thames Region. They were returned anonymously.**
***Results*: Seventy questionnaires were returned (76% response rate) and 61 questionnaires were used in the data analysis; 18 from coloproctologists and 43 from non-coloproctologists who treated Hs. First degree Hs were mostly treated with IS alone (76%). Second degree Hs were treated with rubber band ligation (RBL) alone (36%) or a combination of IS and RBL (36%). Third degree Hs were mostly treated with haemorrhoidectomy (76%). Nineteen surgeons (31%) reported complications using IS; 82% of these were urological. Nine surgeons (15%) did not use IS to treat anterior Hs and 10 (16%) advised their trainees not to inject anteriorly.**
***Conclusions*: IS is a common treatment of Hs. Nearly one-third of consultants reported complications, the majority of which were urological and likely to be secondary to IS of anterior Hs. It may be safer to avoid IS of anterior haemorrhoids.**

Key words: Haemorrhoids – Sclerotherapy – Postoperative complications

Haemorrhoids (Hs) are a common condition which affects both sexes across a wide spectrum of age groups. Many therapeutic modalities are used to treat symptomatic piles, many of which depend on the creation of fibrous reaction in the submucosa of the haemorrhoidal tissue.[1] Injection sclerotherapy (IS) is a

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time-honoured method and is widely practised in the UK and other parts of the world to treat first and second degree haemorrhoids by creating this fibrous reaction. The use of IS started over a century ago and throughout its development different sclerosants have been used.[2] The current sclerosant used in the UK is 5% phenol solution in oil.

The low cost of IS and the ease with which it can be administered by a single operator in an out-patient setting have contributed to its popularity. The procedure is considered to be very safe despite serious complications having been reported. These include local complications such as pain, injection site haemorrhage and ulceration.[3] Urological complications such as haematuria, oleouria, urinary retention, uretheral stricture, epididymitis, prostatic abscess[3] and impotence[4] have also been reported. Septic complications reported included bacteraemia,[5] retroperitoneal abscess formation[6] and necrotising fascitis.[7]

This study was carried out to assess how commonly these complications occur and the attitude of surgeons to injection of the anterior pile and to assess how the different grades of Hs are treated.

Patients and Methods

Study population

The *Medical Register*[8] was searched for the names and addresses of consultant general surgeons in the South East Thames Region (South East London, Kent and East Sussex). Newly appointed consultants who were not listed in the Register but were known to the authors were included in the survey. Ninety-two consultants were identified including those working at our institute but excluding the authors (AJML and JAR).

Data collection

A seven-part questionnaire (Annex 1) was posted to 92 consultants together with a stamped addressed envelope for return. The questionnaires were identical and were returned anonymously.

Questions 1–3 were designed to find out the surgeon's main interest and the range of coloproctological conditions (CPCs) treated, if any.

In question 4, surgeons were asked about their preferred method of treatment for different grades of symptomatic haemorrhoids. Haemorrhoids were assigned grades 1–3 and the treatment options given to the surgeon to choose from were injection sclerotherapy (IS; 5% phenol in oil), rubber band ligation (RBL), haemorrhoidectomy (H) and 'other' where the surgeon was asked to specify the treatment modality.

To assess attitudes to injecting anterior haemorrhoids (AHs), we asked the participants whether they injected AH and whether they instructed their trainees not to do so (AHs were defined as those lying between 10 and 2 o'clock).

Complications of injection sclerotherapy were addressed in question 7. Three specific complications were included, these were prostatitis, prostatic abscess and septicaemia. Surgeons were asked to report other complications using free text.

Results

Seventy out of 92 questionnaires (76%) were returned. Three (4%) were excluded; two were sent to urologists who were listed as general surgeons in the *Medical Register* and one was returned unfilled because the surgeon had recently retired.

Of the remaining 67 respondents, six (9%) did not treat any CPCs, 18 (27%) were coloproctologists (CPs) and 43 (64%) were non-coloproctologists (NCPs) who treated a variety of CPCs. Eight of the latter group treated minor proctological conditions only (haemorrhoids, fissure-in-ano, *etc.*). Therefore, 61 questionnaires were used in the analysis, *i.e.* those from surgeons who treated haemorrhoids.

Question 4 was answered satisfactorily, and therefore used for analysis, by 10 CPs and 32 NCPs. First degree haemorrhoids were mostly treated by IS (60% of CPs and 81% of NCPs). RBL alone or a combination of IS and RBL accounts for the majority of the remaining respondents. Only one surgeon did not treat symptomatic first degree haemorrhoids and preferred dietary manipulation. Photocoagulation was used by only one surgeon (Table 1).

Second degree haemorrhoids were mostly treated using IS, RBL or a combination of the two methods (90% of CPs and 97% of NCPs). Only one surgeon used haemorrhoidectomy as a first option and one surgeon used a combination of RBL and H (Table 2).

Table 1 Therapeutic modalities used to treat first degree haemorrhoids

Treatment modality	CPs $n = 10$	NCPs $n = 32$	Total $n = 42$
CT	1 (10%)	0	1 (2%)
IS	6 (60%)	26 (81%)	32 (76%)
RBL	2 (20%)	1 (3%)	3 (7%)
IS and/or RBL	1 (10%)	4 (13%)	5 (12%)
H	0	0	0
Other (photocoagulation)	0	1 (3%)	1 (2%)

CT, conservative treatment; H, haemorrhoidectomy; IS, injection sclerotherapy; RBL, rubber band ligation; CPs, Coloproctologists; NCPs, non-coloproctologists.

Table 2 Therapeutic modalities used to treat second degree haemorrhoids

Treatment modality	CPs $n = 10$	NCPs $n = 32$	Total $n = 42$
CT	0	0	0
IS	2 (20%)	8 (25%)	10 (24%)
RBL	5 (50%)	10 (31%)	15 (36%)
S and/or RBL	2 (20%)	13 (41%)	15 (36%)
H	0	1 (3%)	1 (2%)
RBL and/or H	1 (10%)	0	1 (2%)

CT, conservative treatment; H, haemorrhoidectomy; IS, injection sclerotherapy; RBL, rubber band ligation.

Table 3 Therapeutic modalities used to treat third degree haemorrhoids

Treatment modality	CPs $n = 10$	NCPs $n = 32$	Total $n = 42$
CT	0	0	
IS	0	0	
RBL	0	1 (3%)	1 (2%)
H	7 (70 %)	25 (78%)	32 (76%)
IS and/or H	1 (10%)	2 (6%)	3 (7%)
RBL and/or H	2 (20%)	3 (9%)	5 (12%)
IS and/or RBL and/or H		1 (3%)	1 (2%)

CT, conservative treatment; H, haemorrhoidectomy; IS, injection sclerotherapy; RBL, rubber band ligation

Third degree haemorrhoids were mostly treated operatively. Haemorrhoidectomy alone or in combination with other methods was used by all CPs and 97% of NCPs. One NCP used RBL alone (Table 3). There was no significant difference between the two groups in treating all degrees of Hs (chi square test, $P > 0.05$).

Of the 61 surgeons only nine did not routinely inject anteriorly. More CPs ($n = 5$, 28%) than NCPs ($n = 4$, 9%) did not inject anteriorly ($P = 0.108$, Fisher's exact test, 2-sided). Four (22%) CPs and 6 (14%) NCPs advised their trainees against injecting anteriorly (NS).

Complications of IS were reported by 19 (31%) surgeons; 4(22%) CPs and 15 (35%) NCPs (NS). All 19 surgeons reported urological complications including prostatitis, haematuria, haematospermia, uretheral stricture, urinary retention and epididymitis. Other complications were septicaemia, significant haemorrhage and injection site ulcer (Table 4).

Table 4 Reported complications of IS

Complication	No. of CPs reporting complication	No. of NCPs reporting complication	Total
Prostatitis	3	9	12
Haematuria	2	2	4
Haematospermia	1	3	4
Septicaemia	0	3	3
Urinary retention	1	0	1
Urethral stricture	0	1	1
Epididymitis	0	1	1
Haemorrhage	1	0	1
Injection site ulcer	1	0	1

Discussion

Injection sclerotherapy is relatively cheap and requires one clinician to administer it. This has contributed to its popularity for treating first and second degree haemorrhoids in the UK. However, in terms of efficacy of treatment IS and photocoagulation are similar[9,10] and both have been shown to be less effective than RBL in controlling symptoms and long-term outcome.[10–14]

A meta-analysis of published randomised controlled trials has not shown a significant difference in the incidence of complications following RBL and IS (including haemorrhage), although RBL was significantly more painful.[15] The number of patients in this analysis was less than 400, which is not enough to account for the less frequent, but often serious, complications.

Urological complications are likely to result from an anteriorly misplaced injection into the substance of the prostate, urethra or the periprostatic venous plexus. Misplacement of injection occurs despite the design of the shaft of the needle, which incorporates a bevelled buffer at a distance of 1–2 cm from the tip of the needle. This distance is too long to prevent injection deeper to the submucosa.

Serious complications following RBL are relatively rare. Massive haemorrhage was reported in 1.2% and urinary retention in 0.6% of cases in a series of 512 patients treated with RBL, priapism occurred in one case.[16] A handful of reports of life-threatening septic complications appeared in the world literature during the 1980s.[17–19] The patient, typically, presents with fever, malaise, perineal pain and urinary symptoms in the first few days after banding. Early recognition and aggressive antibiotic and surgical treatment avert this potentially fatal condition.

Conclusions

The exact incidence of serious, but rare, complications following IS and RBL is not known. However, our survey shows that serious urological complication, following IS, have been encountered by a third of all surgeons in the

South East Thames region. We, therefore, recommend that symptomatic anterior haemorrhoids requiring treatment are best dealt with by methods other than IS such as RBL which is more efficacious and probably safer.

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ANNEX 1: The questionnaire

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Please circle the appropriate response:

1. *Is coloproctology your main interest?* (yes/no)
2. *Do you manage colorectal conditions?* (yes/no)
3. *Do you manage:*
   Minor conditions, *e.g.* haemorrhoids and anal fissure? (yes/no)
   Major conditions, *e.g.* colorectal cancer, inflammatory bowel disease? (yes/no)
4. *How do you treat symptomatic haemorrhoids?*
   Choose one or more of the four options below.

First degree	( )	1	injection sclerotherapy
Second degree	( )	2	rubber band ligation
Third degree	( )	3	haemorrhoidectomy
		4	other (specify)

5. *Do you use injection sclerotherapy (5% phenol in oil) to treat haemorrhoids lying anteriorly, i.e. between 10 and 2 o'clock in the lithotomy position?* (yes/no)
6. *Do you advise your trainees not to inject anterior haemorrhoids?* (yes/no)
7. *Have you encountered any complications following injection sclerotherapy?,*
   For example:

Prostatitis	(yes/no)
Prostatic abscess	(yes/no)
Septicaemia	(yes/no)
Other (specify)	_____